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THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Philip David Cox, et al.

Examiner: Julie Knecht Smith

Serial No.: 10/084,531

Group Art Unit: 3682

Filed: 27 February 2002

(Atty. Ref. No. 15931-US)

For: Agricultural Rockshaft Bearing Block Structure And Wear Inserts
Therefor

Moline, IL 61265

26 August 2004

APPEAL BRIEF

The Honorable Commissioner of Patents
Alexandria, VA 22313-1450

Sir:

Real Party in Interest

The real party in interest is Deere & Company to whom this application was assigned by the applicants per the assignment document recorded in the United States Patent and Trademark Office on 02/27/2002, at Reel/Frame: 012671/0548.

Related Appeals and Interferences

There are no related appeals or Interferences.

Status of the Claims

Claims 1 - 8 and 10 - 17 are currently pending in the above-identified application and are finally rejected. Claim 9 is cancelled and method claims 18 - 20 are withdrawn.

This appeal is from the rejection of claims 1 - 8 and 10 - 17. A copy of these claims is set forth in the attached Appendix.

Status of the Amendments

A First Amendment was filed on 24 July 2003 in the parent application amending claims 1, 6, 11, 13, and claims 18 - 20 were withdrawn. The First Amendment was entered in its entirety and was considered in the Final Rejection, dated 09/30/2003. A request for reconsideration of the claims in a Response to the Final Rejection was filed on 20 November 2003. The request for reconsideration was considered by the Examiner, but the claims were not considered to be in condition for allowance because: "the claims are directed towards the structure of the bearing block and do not positively claim the structural relationship with the implement frame."

A notice of appeal was filed in the parent application on 23 December 2003 but was withdrawn in favor of filing of an RCE application dated 23 February 2004 including a Preliminary Amendment amending the claims to positively recite the structural relationship with the implement frame. The Preliminary Amendment, which included amending claims 1 and 11 - 17, canceling claim 9 and withdrawing claims 18 - 20, was entered.

A first action Final Rejection of all the claims was issued 27 May 2004. This is an appeal from the Final Rejection and from the issuance of a first action Final Rejection in the RCE application.

Summary of the Invention

The present invention relates to implement lift structure (24) including bearing block structure (60) for lift structure rockshaft (30, 32).

Specifically, referring to FIG. 1 and paragraphs [0015] - [0019] of the specification, there is shown and described implement lift structure (24) including a rockshaft (30 or 32) having circular cross-section, an implement frame (10, 12, 14, 16, 18), and rockshaft bearing block structure (60) connecting the rockshaft to the implement frame. The bearing block structure (60) includes first and second bearing block sections (62 and 64 of FIG. 2), the sections including first and second arc-shaped cavities (82 and 84) with first and second arc-shaped bearing block inserts

(80) received in the respective first and second arc-shaped cavities. Anti-rotation structure (74) projects radially inwardly from the bearing block sections between the cavities (at 74e) and contacts end portions of the bearing block inserts, thereby preventing substantial relative sliding movement between the inserts and the cavities. Also set forth is connector structure (bolts 66) securing the first and second bearing block sections (62 and 64) and the inserts around the rockshaft. The bolts (66) extend through the bearing block sections and sandwich the first bearing block section (62) between the second bearing block structure (64) and the implement frame (16 or 18). The bolts (66) are removable to facilitate removal and replacement of the bearing block inserts (80) without need to dismount the implement lift structure from the implement frame (10).

As pointed out in paragraph [0020] of the specification, the split wear insert structure (80) simplifies assembly of the structure 80 in supportive relationship with the rockshaft. The structure (80) can be replaced when worn without completely dismantling the lift frame structure (44). The connector structure (66) secures the first bearing block section (62) to the second bearing block section and against the implement frame (paragraph [0016]) and is releasable to facilitate placement of the bearing block inserts in the cavities without need to dismount the implement lift structure from the implement frame.

The bearing block inserts (80) are identical (claim 5) and are fabricated from a wear-resistant polyethylene material (claims 5 and 6, respectively, and paragraphs [0005] - [0008] and [0019]). By providing identical half-sections the wear insert structure (80) is relatively easy and inexpensive to fabricate and reduces the number of components that have to be stocked (paragraph [0020] of the specification). The wear insert structure not only facilitates easy repair without substantial lift structure dismantling, but also provides a low friction wear surface which eliminates need for frequent greasing of inconveniently located bearing areas and which has an extensive wear life, even in the hostile environment of lift structure for an implement (paragraph [0008]).

Issues

1. Are claims 1 - 6, 8 and 10 - 14 unpatentable, based on 35 U.S.C. 103(a), as being obvious over Lewallen (U.S. Patent No. 6,213,221) in view of Evans (2,082,944)?

2. Are claims 7 and 17 unpatentable, based on 35 U.S.C. 103(a), as being obvious over Lewallen (6,213,221) in view of Evans (2,082,944), and further in view of Babe (5,688,054)?

3. Is claim 15 unpatentable, based on 35 U.S.C. 103(a), as being obvious over Lewallen (6,213,221) in view of Evans (2,082,944) and further in view of Novoselsky et al (6,100,809)?

4. Is the first action Final Rejection of the present RCE application proper in view of the amendments to the claims set forth in the Preliminary Amendment?

Arguments as to the Issues

1. Are claims 1 - 6, 8 and 10 - 14 unpatentable, based on 35 U.S.C. 103(a), as being obvious over Lewallen (U.S. Patent No. 6,213,221) in view of Evans (2,082,944)?

Independent claims 1 and 11 are directed to a rockshaft bearing block structure for an implement lift system. As pointed out in the Preliminary Amendment, Lewallen 6,213,221 shows a bearing for the hinge pivot pin on a flexible implement, not a rockshaft bearing block structure for implement lift structure. In addition, Lewallen actually teaches away from the claimed first and second bearing block sections and the inserts around a rockshaft. The bearing sleeve (35 of FIGS. 2 and 4) of Lewallen is welded and does not suggest removable connector structure. The connector structure of applicants' claims 1 and 11 is releasable to facilitate placement of the bearing block inserts in the cavities without need to dismount the implement lift structure from the implement frame. Any lift system rockshaft structure fairly suggested by the Lewallen structure would not provide easy removal and replacement of inserts on a rockshaft.

Evans 2,082,944 shows a connecting rod bearing structure. Even if arguably the teachings of a remote art such as connecting rod bearings could be fairly applied

in the present situation, there is no motivation for one skilled in the art to modify the hinge pivot pin structure of Lewallen with the teachings of Evans. Lewallen can simply remove a pin to replace a flanged bearing (38) and has no need for, and would find disadvantage in, a split bearing arrangement as shown in Evans. Applicants cannot simply remove a rockshaft from an implement lift system to service a rockshaft bearing area. A problem to be overcome with the present invention is the easy replacement of wear surfaces in a lift system rockshaft. Applicants' claimed arrangement includes releasable connecting structure securing the first bearing block section to the second bearing block section and against the implement frame to facilitate placement of the bearing block inserts in the cavities without need to fully dismount the rockshaft of implement lift structure from the implement frame. The references fail to even remotely suggest either applicants' problem or applicants' unique solution to the problem, and only with impermissible hindsight would the combined teachings of the references even remotely suggest to one of ordinary skill in the art applicants' unique solution as set forth in the claims.

Lewallen with Evans fails to show or suggest to one skilled in the art the bearing block structure with bearing blocks and inserts in an implement lift structure including a rockshaft, as set forth in claim 1 and claim 11. It would not be obvious to substitute components wherein, such as in the present situation, inventive connections with other components are required or the motivation to make such a substitution is lacking from a fair reading of the references and what the references teach. Lewallen shows a bearing for a removable hinge pivot pin and actually teaches away from the claimed first and second bearing block sections, connecting structure, and first and second inserts around a rockshaft defining a cylindrical rockshaft bearing wear area. The bearing sleeve 35 of Lewallen is welded, and the pin 57 is removable to replace the one-piece flanged bearing 38. The combined teachings of the hinge pivot pin structure of Lewallen and the connecting rod structure of Evans would not have suggested to a person skilled in the art the bearing structure for implement lift structure as set forth in claims 1 or 11. In addition, the effect of the combination would be to destroy the invention of Lewallen (i.e., the pivot pin through an inner flanged, one piece bearing sleeve of Lewallen).

As the Examiner states, the *In re Keller* test is what the combined teachings of the references would have suggested to those of ordinary skill in the art and not necessarily bodily incorporation into the structure of the primary reference. In this situation, the combined teachings of the references do not suggest the bearing structure of the claims in question, particularly since the effect of the suggested combination would be to destroy the invention of Lewallen. There must be a teaching, motivation, or suggestion to select and combine the references relied on as evidence of obviousness. Even though a suggestion to combine need not be express and may come from the prior art, as filtered through the knowledge of one skilled in the art, it is respectfully submitted that the Examiner has failed to satisfy this burden by failure to show some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art that would lead that individual to combine the relevant teachings of the references. The references as applied simply do not lend themselves to such combination without impermissible hindsight.

Therefore, claim 1 as presented, and claims 2 - 8 and 10 dependent therefrom, and claim 11 as presented, and claims 12 - 17 dependent therefrom are believed to be in order for allowance.

2. Are claims 7 and 17 unpatentable, based on 35 U.S.C. 103(a), as being obvious over Lewallen (6,213,221) in view of Evans (2,082,944), and further in view of Babe (5,688,054)?

For the reasons stated above with respect to claims 1 and 11, from which claims 7 and 17 respectfully depend, claims 7 and 17 are believed to be allowable. Further, claim 7 is dependent from claim 6 and therefore includes the limitations of bearing block inserts, each having an identical half cylinder shape, fabricated from a wear-resistant polyethylene material. Babe, alone or in combination with the remaining references, fails to teach or suggest to one skilled in the art half-cylinder shaped polyethylene inserts in combination with connector structure securing the first bearing block section to the second bearing block section and against the implement frame to facilitate placement of the bearing block inserts in the cavities without need to dismount the implement lift structure from the implement frame. The unique arrangement of structure as set forth in claims 7 and 17 facilitates

replacement of the wear surfaces in a lift structure in a manner not suggested by a fair reading of Lewallen, Evans and Babe. It is the claimed combination of structure including half-cylinder inserts which facilitates removal of the bearing block structure from the implement frame and removal of the inserts from around the rockshaft and replaced easily without dismantling of the entire lift structure. Applicants' attorney fails to see how the combined teachings of the references suggest to a person of ordinary skill in the art the combination of structure without impermissible use of hindsight after viewing applicants' structure.

3. Is claim 15 unpatentable, based on 35 U.S.C. 103(a), as being obvious over Lewallen (6,213,221) in view of Evans (2,082,944) and further in view of Novoselsky et al (6,100,809)?

For the reasons stated above with respect to claim 11, from which claim 15 depends, claim 15 is believed to be allowable. Further, claim 15 sets forth anti-rotation structure adapted for support between the bearing block sections within the cavities and having an edge defining an insert wear warning device providing an audible signal when the inserts wear to a preselected level. The Novoselsky reference, as pointed out in the First Amendment, clearly fails to show or suggest to one skilled in the art the structure of claim 15 with anti-rotation structure adapted for support between the bearing block sections within the cavities.

The anti-rotation structure has an edge defining an insert wear warning device providing an audible signal when the inserts wear to a preselected level. This simple arrangement for an implement in combination with the lift structure set forth in claim 11 is believed to not be shown or suggested by the references including Evans and Novoselsky. Novoselsky shows a complicated electronic arrangement for an aircraft generator. The mere fact of the existence of audible warning devices for detecting wear in bearing assemblies does not necessarily make the reference pertinent to the particular problem of providing a very simple detection system for providing an audible signal for bearing block insert wear in an implement lift system. The references simply fail to provide a motivation, suggestion or teaching to one skilled in the art of the specific structure as set forth in claim 15. Therefore, claim 15 is believed to be clearly allowable over the references.

4. Is the first action Final Rejection of the present RCE application proper in view of the amendments to the claims set forth in the Preliminary Amendment?

A request for reconsideration of the claims in a Response to the Final Rejection was filed on 20 November 2003 in the parent application and was considered by the Examiner. However, the claims were not considered to be in condition for allowance because: "the claims are directed towards the structure of the bearing block and do not positively claim the structural relationship with the implement frame" (see page 2 of the office communication dated 12/17/2003). In a telephone interview with the Examiner on 19 February 2004 (see page 5, second paragraph of the Preliminary Amendment dated 23 February 2004) applicants' attorney indicated he would amend the claims to positively claim the structural relationship with the implement frame. In the Preliminary Amendment, a first appeal was withdrawn and the independent claims 1 and 11 were amended to positively recite the structural relationship with the implement frame.

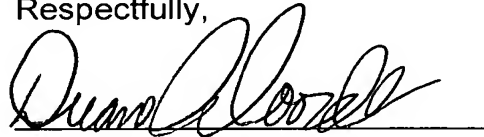
It is applicants' contention that the amended independent claims in the RCE application are not drawn to the same invention claimed in the parent application. The structural relationship of the bearing block with the frame is a key to the invention as now claimed (see the arguments above with respect to the rejection of claims 1 and 11) and was rightfully recognized by the Examiner as not being positively claimed in the original application. With the positive recital of this key structural relationship of the invention in the independent claims, it is respectfully submitted that the claims as now presented are not drawn to the same invention as in the original application and that the finality of the rejection should be withdrawn.

In conclusion, it is respectfully submitted, that for the reasons stated above, the invention, as set forth in claims 1 - 8 and 10 -17, would not have been obvious over the references as applied, and applicants' request that the rejection of these claims be reversed.

It is also respectfully requested that the finality of the first action be withdrawn, particularly in view of the recitation of the reason the claims were not considered to be in conditions for allowance in the Final Rejection in the parent application, the reliance upon the remarks by applicants' attorney in withdrawing the first appeal and filing the RCE application, and the Preliminary Amendment.

Any fees or charges due as a result of filing the present paper may be charged against Deposit Account 04-0525. Two duplicates of this page are enclosed.

Respectfully,



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Deere & Company

Becky Hansen 26 Aug 2004
Signature Date

Listing of Claims in the Application:



APPENDIX

Claim 1 (amended): Implement lift structure including rockshaft having circular cross-section, an implement frame, rockshaft bearing block structure connecting the rockshaft to the implement frame, the bearing block structure comprising:

first and second bearing block sections, the sections including first and second arc-shaped cavities;

first and second arc-shaped bearing block inserts received in the respective first and second arc-shaped cavities;

anti-rotation structure projecting radially inwardly from the bearing block sections between the cavities and contacting end portions of the bearing block inserts, thereby preventing substantial relative sliding movement between the inserts and the cavities; and

connector structure securing the first and second bearing block sections and the inserts around the rockshaft, wherein the connector structure includes bolts extending through the bearing block sections and sandwiching the first bearing block section between the second bearing block structure and the implement frame, the bolts removable to facilitate removal and replacement of the bearing block inserts without need to dismount the implement lift structure from the implement frame.

Claim 2 (original): The structure of claim 1 wherein the anti-rotation structure comprises a clip sandwiched between the bearing block sections.

Claim 3 (original): The structure of claim 2 wherein the clip comprises a planar member and the bearing block sections include indexing structure preventing movement of the clip relative to the bearing block sections.

Claim 4 (original): The structure of claim 3 wherein the indexing structure comprises a projection on one of the bearing block sections.

Claim 5 (original): The structure of claim 1 wherein the bearing block inserts are identical.

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Claim 6 (amended): The structure of claim 1 wherein the bearing block inserts each have a half cylinder shape.

Claim 7 (original): The structure of claim 6 wherein the inserts are identical and fabricated from a wear-resistant polyethylene material.

Claim 8 (original): The structure of claim 2 wherein the connector structure includes a bolt sandwiching the clip between bearing block sections.

Claim 9 (canceled)

Claim 10 (original): The structure of claim 1 wherein the anti-rotation structure includes a cavity end portion.

Claim 11 (currently amended): An agricultural implement lift structure including an implement frame, a rockshaft, a rockshaft bearing block structure rotatably mounting the rockshaft to the implement frame, the bearing block structure including first and second bearing block sections with first and second cavities, wear insert structure comprising: first and second bearing block inserts having outer surfaces complimentary to the first and second cavities and adapted for support therein, the bearing block inserts including inner surfaces defining a substantially cylindrical rockshaft bearing wear area when the inserts are supported in the cavity; wherein the bearing block inserts include a contact area adapted for non-rotatably indexing the inserts relative to the bearing block structure, and further including connector structure securing the first bearing block section to the second bearing block section and against the implement frame, the connector structure releasable to facilitate placement of the bearing block inserts in the cavities without need to dismount the implement lift structure from the implement frame.

Claim 12 (amended): The lift structure as set forth in claim 11 further comprising anti-rotation structure located within the cavities, the anti-rotation structure including a surface engaging the contact area thereby preventing substantial relative sliding movement between the bearing block inserts and the cavities.

Claim 13 (amended): The lift structure as set forth in claim 11 wherein the bearing block inserts comprise identical half portions each conforming to the shape of a half cylinder.

Claim 14 (amended): The lift structure as set forth in claim 13 wherein the contact area comprises an end portion of the half portions.

Claim 15 (amended): The lift structure as set forth in claim 12 further comprising anti-rotation structure adapted for support between the bearing block sections within the cavities and having an edge defining an insert wear warning device providing an audible signal when the inserts wear to a preselected level.

Claim 16 (amended): The lift structure as set forth in claim 13 wherein the bearing block inserts have a shape conforming to and non-rotatably received in the first and second cavities.

Claim 17 (amended): The lift structure as set forth in claim 13 wherein the inserts are fabricated from a polyethylene material.

Claims 18 - 20 (withdrawn)